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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,992	06/25/2003	Dan Daeweon Cheong	356828001US1	4507

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EXAMINER	
MARKHAM, WESLEY D	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,992	CHEONG, DAN DAEWEON	
	Examiner	Art Unit	
	Wesley D. Markham	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/2/2005 (the RCE)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 June 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application on 9/2/2005 after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action (i.e., the Office action mailed on 6/21/2005) has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/2/2005 has been entered.

Response to Amendment

2. Acknowledgement is made of the amendment filed by the applicant on 9/2/2005, in which independent Claim 24 was amended and Claim 45 was added. **Claims 24 – 45** are currently pending in U.S. Application Serial No. 10/606,992, and an Office action on the merits follows.

Drawings

3. The drawings filed on 6/25/2003 are objected to because the reference characters and lines are handwritten and unclear (i.e., the reference characters, numbers, and lines are not sufficiently dark and dense, and uniformly thick and well-defined, as required by 37 CFR 1.84(l)).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. **Claim 27** requires that "said monitoring of step (ii) is used in step (iii)". However, the applicant's amendment to independent Claim 24 (from which Claim 27 indirectly depends) deleted "step (iii)" from the claim. Therefore, it is unclear what "step (iii)" in Claim 27 refers to (i.e., because there is no antecedent basis for "step (iii)" in the claims), and the scope of the claim is vague and indefinite.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 24 – 45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically,

amended independent **Claim 24** (from which **Claims 25 – 44** depend) and new independent **Claim 45** require, in part, that the temporal variation of the deposits be independently controlled by independently monitoring and continuously varying the rates of deposition of the components of the deposit(s) to obtain continuous homogeneous temporal deposition of the composition on the substrate. This limitation is not supported, either explicitly, implicitly, or inherently, in the specification as originally filed. In other words, while the originally filed specification did disclose simultaneously effecting vapor deposition of first and second deposits and determining temporal variation of the deposition of the components from the first and second deposits onto a substrate, wherein the temporal variation of each of the deposits is independently controlled by independent, shielded monitoring systems, the specification did not disclose continuously varying the rates of deposition of the components of the deposits onto the substrate to obtain continuous homogeneous temporal deposition of the composition. As such, Claims 24 – 45 contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Additionally and regarding new **Claim 45**, the claim requires, in part, "independently monitoring and continuously varying the rates of deposition of said components of at least one of said deposits...". However, the specification as originally filed did not disclose or suggest only monitoring the deposition rate of one of the deposits (see, for example, Figure 1 and pages 4 – 7 of the specification of the instant application (particularly

page 7, lines 10 – 19), in which the applicant clearly discloses that two or more sources are monitored / controlled in the present invention). Therefore, Claim 45 literally reads on an embodiment not originally disclosed or suggested in the originally filed specification (i.e., monitoring the deposition rate of only one of the deposits) and contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 24 – 27, 33, 34, 37, 41, 42, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanda et al. (USPN 5,089,104).

11. Regarding independent **Claims 24 and 45**, Kanda et al. teaches a method for the deposition of a thin film of a pre-determined composition onto a substrate "10", the composition comprising a ternary, quaternary, or higher composition, comprising the steps of placing a first deposit (i.e., any one of sources "5", "6", "7", or "8") at a first source of a vapor deposition apparatus and placing a second deposit (i.e., any one

of sources "5", "6", "7", or "8") at a second source of the vapor deposition apparatus, the first and second deposits being different, components of the first and second deposits in combination forming the pre-determined composition, and simultaneously effecting vapor deposition of the first and second deposits and determining the temporal variation of the deposition of the components from the first and second deposits, wherein the temporal variation of each of the first and second deposits is independently controlled by independently monitoring (i.e., by using a plurality of analyzing systems "11") and continuously varying (i.e., by feedback control) the rates of deposition of the components of the first and second deposits onto the substrate to obtain continuous homogenous temporal deposition of the composition on the substrate (Abstract, Figure 3, Col.2, line 15 – Col.5, line 45, and Embodiments 1 – 4). Regarding **Claims 25 – 27**, the monitoring used to independently determine and control the temporal variation of the deposition of each of the deposits is performed with a plurality of monitors that monitor the rate of vaporizing from each of the sources, the monitors being shielded from deposition from the sources (i.e., by "blind tubes 11d") (Figures 1A and 2; Col.5, line 65 – Col.6, line 59). Regarding **Claim 33**, Kanda et al. also teaches a third deposit placed at a third source, components of the third deposit forming part of the composition (Col.6, lines 52 – 58). Regarding **Claim 34**, Kanda et al. also teaches an opaque substrate, specifically an MgO (i.e., ceramic) substrate and/or a Si substrate (Col.6, lines 6 – 7, Col.8, line 31). Regarding **Claims 37, 41, and 42**, Kanda et al. teaches that the deposition is by (ion beam) sputtering, which the examiner has reasonably

interpreted to be a form of "thermal evaporation" (Col.2, line 15 – Col.3, line 30). Regarding **Claim 42**, Kanda et al. teaches that the power of the ion beam sources used to sputter each of the source materials is controlled (Col.3, lines 34 – 51, Col.6, lines 39 – 51), and doing so would have inherently controlled the temperature of the sources to some extent (i.e., because a higher power ion beam source would impart more energy to the material source than a lower power ion beam source, thereby "controlling" the source material(s) temperature).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 30, 31, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanda et al. in view of Fuyama et al. (USPN 4,857,802).

14. Kanda et al. teaches all the limitations of **Claims 30 and 38** as set forth above in paragraph 11, except for a method wherein the composition is a dielectric thin film. However, Kanda et al. does generally teach that the process is used to deposit multi-element compounds such as multi-element oxides, multi-element nitrides, multi-element metallic compounds, alloys, etc. (Col.5, lines 37 – 45), and the monitoring / controlling process used in combination with the deposition process

allows film formation to be accomplished with a high repeatability of composition and a highly accurate compositional control (Col.3, lines 4 – 26, Col.5, lines 1 – 45). Fuyama et al. teaches a method of making a thin film EL element (Abstract) comprising depositing a multi-component (e.g., $SrTiO_3$, $PbTiO_3$, $BaTiO_3$, etc.) dielectric thin film by sputtering prior to depositing a light emitting phosphor layer. Fuyama et al. controls the sputtering power during the dielectric thin film deposition in order to obtain a dielectric film having the desired properties (Col.3, line 25 – Col.5, line 36). It would have been obvious to one of ordinary skill in the art to utilize the monitoring and control method of Kanda et al. to deposit the multi-component dielectric thin film(s) of Fuyama et al. with the reasonable expectation of (1) success, as the sputtering process of Kanda et al. successfully deposits multi-component oxide layers, and Fuyama et al. teaches depositing the multi-component oxide dielectric layer by sputtering in general, and (2) obtaining the benefits of using the monitoring and control method of Kanda et al., such as allowing film formation to be accomplished with a high repeatability of composition and a highly accurate compositional control. Regarding **Claim 31**, the combination of Kanda et al. and Fuyama et al. also teaches depositing a phosphor juxtaposed to the dielectric film (Figure 1; Col.5, line 59 – Col.6, line 15 of Fuyama et al.).

15. Claims 24 – 29, 32, 33, 35 – 37, 41, 42, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velthaus et al. (USPN 5,505,986) in view of Kanda.

16. Regarding **Claims 24, 28, 29, 32, 33, 35 – 37, and 45** Velthaus et al. teaches a method for the deposition of a thin film of a pre-determined composition onto a substrate, the composition comprising a ternary, quaternary, or higher composition, the composition being a phosphor film such as those claimed by the applicant comprising providing multiple thermal evaporation, sputtering, CVD, etc. sources containing different deposits each having components of the film in a vapor deposition apparatus and simultaneously evaporating the materials to form the composition on the substrate (Abstract, Figure 2, Col.2, line 39 – Col.4, line 33). Velthaus et al. teaches that the temperature of each source is individually controlled so that the flux of each deposition source is independently controlled (Col.3, lines 1 – 10). Velthaus et al. does not explicitly teach determining the temporal variation of the deposition of the components from the first and second deposits, wherein the temporal variation of each of the first and second deposits is independently controlled by independently monitoring and continuously varying the rates of deposition of the components of the first and second deposits onto the substrate to obtain continuous homogenous temporal deposition of the composition on the substrate. Specifically, Velthaus et al. is silent regarding the specific temperature control method, but it is clearly the objective of Velthaus et al. to independently control the flux of the source materials during the deposition process so that a stoichiometric film which is not deficient in any element is produced (Col.2, lines 9 – 21), thereby indicating a desire for continuous homogeneous temporal deposition of the film. Kanda et al. teaches a method for the deposition of a thin film of a pre-

determined composition onto a substrate, the composition comprising a ternary, quaternary, or higher composition, comprising the steps of placing a first deposit (i.e., any one of sources "5", "6", "7", or "8") at a first source of a vapor deposition apparatus and placing a second deposit (i.e., any one of sources "5", "6", "7", or "8") at a second source of the vapor deposition apparatus, the first and second deposits being different, components of the first and second deposits in combination forming the pre-determined composition, and simultaneously effecting vapor deposition of the first and second deposits and determining the temporal variation of the deposition of the components from the first and second deposits, wherein the temporal variation of each of the first and second deposits is independently controlled by independently monitoring (i.e., by using a plurality of analyzing systems "11") and continuously varying (i.e., by feedback control) the rates of deposition of the components of the first and second deposits onto the substrate to obtain continuous homogenous temporal deposition of the composition on the substrate (Abstract, Figure 3, Col.2, line 15 – Col.5, line 45, and Embodiments 1 – 4). Further, Kanda et al. teaches that the process is used to deposit multi-element compounds such as multi-element oxides, multi-element nitrides, multi-element metallic compounds, alloys, etc. (Col.5, lines 37 – 45), and the monitoring / controlling process used in combination with the deposition process allows film formation to be accomplished with a high repeatability of composition and a highly accurate compositional control (Col.3, lines 4 – 26, Col.5, lines 1 – 45). It would have been obvious to one of ordinary skill in the art to utilize the monitoring and control method

of Kanda et al. to deposit the multi-component phosphor film(s) of Velthaus et al. with the reasonable expectation of (1) success, as the sputtering process of Kanda et al. successfully deposits multi-component layers, and Velthaus et al. teaches depositing the multi-component phosphor layer by multisource sputtering, thermal evaporation, CVD, etc. in general, and (2) obtaining the benefits of using the monitoring and control method of Kanda et al., such as allowing film formation to be accomplished with a high repeatability of composition and a highly accurate compositional control. This would clearly be a benefit in the process of Velthaus et al., which is required to produce a variation-free stoichiometric multi-component film. Regarding **Claims 25 – 27**, Kanda et al. also teaches the specifics of the monitoring / control process (see paragraph 11 above). Regarding **Claims 41 and 42**, the combination of Velthaus et al. and Kanda et al. also teach vapor deposition by thermal evaporation in which the temperature of each source is controlled (Col.3, lines 1 – 10 of Velthaus et al.; discussion of Kanda et al. in paragraph 11 above).

17. Claims 30, 31, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velthaus et al. (USPN 5,505,986) in view of Kanda, in further view of Fuyama et al.

18. The combination of Velthaus et al. and Kanda teaches all the limitations of **Claims 30, 31, and 38** as set forth above in paragraph 16, except for the composition being a dielectric thin film. However, Velthaus et al. does generally teach depositing dielectric thin films above and below the phosphor layer (Figure 1, Col.2, lines 39 –

50). Fuyama et al. teaches depositing multi-component dielectric films in the production of a thin film EL element (i.e., the same device produced by Velthaus et al.), the dielectric films having a high dielectric constant, a high dielectric strength, and a high performance reliability in the device (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art to deposit the multi-component dielectric film(s) of Fuyama et al. as the dielectric film(s) of Velthaus et al. in order to reap the aforementioned benefits. Further, it would have been obvious to one of ordinary skill in the art to deposit the dielectric films, along with the phosphor films, while utilizing the monitoring / controlling method of Kanda for the reasons set forth above in paragraph 14.

19. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Velthaus et al. (USPN 5,505,986) in view of Kanda, in further view of Wu et al. (USPN 5,432,015).

20. The combination of Velthaus et al. and Kanda teaches all the limitations of **Claim 34** as set forth above in paragraph 16, except for utilizing an opaque substrate. However, Wu et al. teaches that, in the art of producing an improved EL device, the substrates used to make the device should be opaque in order to allow laser light drilling of through-holes in the substrate(s), which is a step in the EL device manufacturing process (Col.17, lines 28 – 62). Therefore, it would have been obvious to one of ordinary skill in the art to utilize an opaque substrate in the process of the combination of Velthaus et al. and Kanda in order to facilitate the overall EL

device production process, particularly the step of laser drilling through-holes in the substrate(s).

21. Claims 39, 40, 43, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velthaus et al. (USPN 5,505,986) in view of Kanda, in further view of Fuyama et al. and Wu et al.

22. The combination of Velthaus et al., Kanda, and Fuyama et al. teaches all the limitations of **Claims 39, 40, 43, and 44** as set forth above in paragraphs 16 and 18, except for a method wherein the films (i.e., the dielectric and phosphor films) are deposited by electron beam vapor deposition. However, Wu et al. teaches the functional equivalence of depositing the films of a thin film EL device (i.e., the device of Velthaus et al.) by various thin film techniques, such as sputtering and electron beam vacuum evaporation (Col.1, lines 47 – 66). Therefore, it would have been obvious to one of ordinary skill in the art to perform the deposition processes by electron beam deposition as opposed to sputtering with the reasonable expectation of success and obtaining similar results.

23. Claims 24, 28, 29, 32, 33, 35 – 37, and 39 – 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velthaus et al. (USPN 5,505,986) in view of Shimoyama et al. (USPN 5,372,837).

24. Regarding **Claims 24, 28, 29, 32, 33, 35 – 37, and 45** Velthaus et al. teaches a method for the deposition of a thin film of a pre-determined composition onto a

substrate, the composition comprising a ternary, quaternary, or higher composition, the composition being a phosphor film such as those claimed by the applicant comprising providing multiple thermal evaporation, sputtering, CVD, etc. sources containing different deposits each having components of the film in a vapor deposition apparatus and simultaneously evaporating the materials to form the composition on the substrate (Abstract, Figure 2, Col.2, line 39 – Col.4, line 33). Velthaus et al. teaches that the temperature of each source is individually controlled so that the flux of each deposition source is independently controlled (Col.3, lines 1 – 10). Velthaus et al. does not explicitly teach determining the temporal variation of the deposition of the components from the first and second deposits, wherein the temporal variation of each of the first and second deposits is independently controlled by independently monitoring and continuously varying the rates of deposition of the components of the first and second deposits onto the substrate to obtain continuous homogenous temporal deposition of the composition on the substrate. Specifically, Velthaus et al. is silent regarding the specific temperature control method, but it is clearly the objective of Velthaus et al. to independently control the flux of the source materials during the deposition process so that a stoichiometric film which is not deficient in any element is produced (Col.2, lines 9 – 21), thereby indicating a desire for continuous homogeneous temporal deposition of the film. Shimoyama et al. teaches determining the temporal variation of each of a plurality of phosphor deposits by independently controlling, independently monitoring, and continuously varying the rates of deposition of the components of

each of the deposits, thereby obtaining a uniform phosphor film on a substrate during the production of a thin film EL device (Figure 5; Col.1, line 39 – Col.2, line 27). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the monitoring / controlling process of Shimoyama et al. to independently control the temperature of the deposition sources during the multi-component phosphor film deposition process of Velthaus et al. in order to insure that a uniform, homogeneous film is deposited on the substrate. Regarding **Claims 39 – 44**, the deposition is by an electron beam (i.e., thermal evaporation) process in which the source temperatures are independently controlled (Col.1, lines 48 – 67 of Shimoyama et al.; Col.3, lines 1 – 10 of Velthaus et al.).

25. Claims 25 – 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velthaus et al. (USPN 5,505,986) in view of Shimoyama et al., in further view of McKee et al. (USPN 5,906,857).

26. The combination of Velthaus et al. and Shimoyama et al. teaches all the limitations of **Claims 25 – 27** as set forth above in paragraph 24, except for a method wherein the coating rate monitors "17" and "21" are each shielded from the other. However, Velthaus et al. teaches that the materials are, for example, evaporated out of an effusion cell (Col.3, lines 1 – 10), and it is clear from Figure 5 of Shimoyama et al. that each coating rate monitor should only measure the flux of material emitted from its corresponding coating material source. McKee et al. teaches positioning coating rate monitors within each effusion cell during a multi-component film deposition

process so that information about the emission of atoms from each source can be continuously monitored (Figures 1, 3, and 10; Col.10, lines 42 – 54). Therefore, it would have been obvious to one of ordinary skill in the art to locate the coating rate monitors of the combination of Velthaus et al. and Shimoyama et al. to be isolated from each other (e.g., within the appropriate effusion cell) so that each monitor only measures the amount of material emitted from a desired source and there is no "cross-contamination" of the coating monitors (which would be expected to reduce the accuracy of the process).

Response to Arguments

27. Applicant's arguments filed on 9/2/2005 have been fully considered but they are not persuasive. Specifically, the applicant's arguments are moot in view of the new grounds of rejection set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wesley D Markham
Examiner
Art Unit 1762

WDM

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER